

## Claims

1. A vehicle brace for a vehicle that tends to move vertically in response to being loaded or unloaded at loading dock, the vehicle brace comprising:

a support member installable at the loading dock and being movable to preparatory position adjacent to the vehicle so that the vehicle is able to exert against the support member an applied force that urges the support member down from the preparatory position; and

a control system coupled to the support member, wherein the control system enables the support member to exert against the vehicle a reactive force that opposes the applied force such that the support member appreciably slows the descent of the vehicle when the vehicle moves downward.

2. The vehicle brace of claim 1, wherein the reactive force is limited to no more than a predetermined maximum allowable force to help protect the vehicle from experiencing an excessive reactive force.

3. The vehicle brace of claim 2, wherein the magnitude of the reactive force substantially equals that of the applied force up to the predetermined maximum allowable force.

4. The vehicle brace of claim 1, wherein the reactive force increases in response to a downward velocity of the support member increasing.

5. The vehicle brace of claim 1, wherein the vehicle moves the support member to the preparatory position.

6. The vehicle brace of claim 1, wherein the control system moves the support member to the preparatory position.

7. The vehicle brace of claim 1, wherein the support member includes a weight-bearing surface adapted to engage the vehicle, where the weight-bearing surface is horizontally movable to accommodate horizontal movement of the vehicle.

8. The vehicle brace of claim 1, further comprising:

a piston/cylinder incorporated within the control system and being mechanically coupled to the support member; and a lower pressure relief valve incorporated within the control system and being in fluid communication with the piston/cylinder, wherein

the lower pressure relief valve is substantially closed when the applied force is less than a predetermined yield force and is open when the applied force is greater than the predetermined yield force.

9. The vehicle brace of claim 8, further comprising a higher pressure relief valve incorporated with the control system and being in fluid communications with the piston/cylinder, wherein the higher pressure relief valve is substantially closed when the applied force is between the predetermined yield force and a predetermined maximum allowable force, and the higher pressure relief valve is open when the applied force is greater than the predetermined maximum allowable force, where the predetermined yield force is less than the predetermined maximum allowable force.

10. The vehicle brace of claim 1, further comprising:  
a piston/cylinder incorporated within the control system and being mechanically coupled to the support member; and

a flow restrictor incorporated with the control system and being in fluid communication with the piston/cylinder, wherein the flow restrictor provides a pressure differential that enables the support member to exert the reactive force against the vehicle.

11. The vehicle of claim 10, wherein the control system includes a check valve in bypass relationship with the flow restrictor such that the support member can move more freely upward than downward.

12. The vehicle brace of claim 1, further comprising a load sensor for detecting when the vehicle is about to be loaded or unloaded, wherein the magnitude of the reactive force is at least partially determined based on the load sensor.

13. The vehicle brace of claim 1, where the control system includes a brake operatively coupled to the support member such that friction created by the brake enables the support member to exert the reactive force against the vehicle.

14. The vehicle brace of claim 1, wherein the control system includes a spring operatively coupled to the support member, wherein stored energy of the spring enables the support member to exert the reactive force against the vehicle.

15. The vehicle brace of claim 1, further comprising a vehicle restraining member protruding above the support member to help prevent the vehicle from prematurely moving away from the loading dock.

16. The vehicle brace of claim 15, wherein the vehicle restraining member is movable relative to the support member.

17. The vehicle brace of claim 15, wherein the vehicle restraining member moves with the support member.

18. A method of operating a vehicle brace in response to downward movement of a vehicle's rear edge, wherein the vehicle brace is attached to a loading dock, the method comprising appreciably slowing the descent of the vehicle's rear edge by having the vehicle brace exert a reactive force upward against the vehicle's rear edge.

19. The method of claim 18, further comprising increasing the reactive force in response to increasing the descent of the vehicle's rear edge.

20. The method of claim 18, further comprising moving a portion of the vehicle brace horizontally to accommodate horizontal movement of the vehicle's rear edge.

21. The method of claim 18, wherein the step of appreciably slowing the descent of the vehicle's rear edge is carried out by forcing a fluid through a flow restriction.

22. The method of claim 18, further comprising sensing when the vehicle is about to be loaded or unloaded.

23. The method of claim 18, wherein the step of appreciably slowing the descent of the vehicle's rear edge is carried out by applying frictional drag.

24. The method of claim 18, wherein the step of appreciably slowing the descent of the vehicle's rear edge is accomplished by storing energy in a spring.

25. The method of claim 18, further comprising raising a vehicle restraining member to limit horizontal movement of the vehicle.

26. A loading dock installation comprising:

a leveling device including a deck pivotally mounted to the loading dock and a lip mounted to a forward end of the deck for creating a bridge between the deck and a vehicle parked at the loading dock; and

a vehicle brace mounted adjacent the loading dock for yieldably engaging the vehicle and minimizing vertical deflection of the vehicle for loads applied thereto.